Octopus 5800 Series

User Manual

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Warranty Policy

All Shireen's products warranted to the original purchaser to be free from defects in materials and workmanship under normal installation, use, and service for a period of one (1) year from the date of purchase.

Under this warranty, Shireen, Inc. shall repair or replace (at its option), during the warranty period, any part that proves to be defective in material of workmanship under normal installation, use and service, provided the product is returned to Shireen, Inc., or to one of its distributors with transportation charges prepaid. Returned products must include a copy of the purchase receipt. In the absence of a purchase receipt, the warranty period shall be one (1) year from the date of manufacture.

This warranty shall be voided if the product is damaged as a result of defacement, misuse, abuse, neglect, accident, destruction or alteration of the serial number, improper electrical voltages or currents, repair, alteration or maintenance by any person or party other than a Shireen, Inc. employee or authorized service facility, or any use in violation of instructions furnished by Shireen Inc.

This warranty is also rendered invalid if this product is removed from the country in which it was purchased, if it is used in a country in which it is not registered for use, or if it is used in a country for which it was not designed. Due to variations in communications laws, this product may be illegal for use in some countries. Shireen, Inc. assumes no responsibility for damages or penalties incurred resulting from the use of this product in a manner or location other than that for which it is intended.

RMA Policy

IN NO EVENT SHALL SHIREEN, INC. BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, WHATSOEVER.

Some states do not allow the exclusion or limitation of special, incidental or consequential damages, so the above exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state. It is important to us that all Shireen's products are bought with full confidence. If you are not 100% satisfied with any product purchased from Shireen you may receive a prompt replacement or refund, subject to the terms and conditions outlined below.

IMPORTANT: Before returning any item for credit or under warranty repair, you must obtain a Return Merchandise Authorization (RMA) number by filling out the RMA form.

Products will not be accepted without an RMA number.

30 Day full refund or credit policy:
1. Product was purchased from Shireen no more than 30 day prior to the return request.
2. All shipping charges associated with returned items are non-refundable.
3. Products are returned in their original condition along with any associated packaging, accessories, mounting hardware and manuals. Any discrepancy could result in a delay or partial forfeiture of your credit.

Unfortunately Shireen cannot issue credits for:
1. Products not purchased from Shireen directly. If you purchased from a reseller or distributor you must contact them directly for return instructions.
2. Damaged items as a result of misuse, neglect, or improper environmental conditions.
3. Products purchased direct from Shireen more than 30 days prior to a product return request.

To return any product under 1 year warranty for repair/replacement, follow the RMA procedure.

Introduction

Octopus 5800 Series is an industrial grade outdoor wireless access product available for use as Access point, Bridge or Client for the 5.8 GHz frequency band. With optional amplifier module (Octopus 5826A/Octopus 5800SA), the total EiRP goes up to 54dBm. This unit is the most powerful unit available that can link up to 60 miles (100Km) line of sight. The unit is offered in ruggedized outdoor housing with antenna included and powered over Ethernet.

(i) Octopus 5826/5826A

The octopus 5826 is the client version of the octopus 5800 Series which includes a fully integrated Panel Antenna. Octopus 5826A is the amplified variant of the octopus 5826 Client with a built in 1 watt amplifier module.

Fig 1.1 **Octopus 5826/5826A Client**

(ii) Octopus 5800/5800A

The octopus 5800 is the standalone version of the octopus 5800 series with an IP66 standard enclosure. The standalone version is fully customizable with any antenna type and is provided with standard N-Type connectors. The 5800A is the amplified variant of the standalone version.

Fig 1.2 **Octopus 5800/5800A**

Specifications

- Supports data rates up to 108 Mbps
- Strong network security with WPA, WPA2 and 64/128 bit WEP encryption.
- MAC Address Filtering
- Data based QoS with Stream Engine Technology from Ubicom (Optimal for Media & VOIP Networks)
- Supports bandwidth and SNMP Management control
- Provide Window-base Utility, Web, CLI (Command Line Interface) Configuration
- Adjustable Tx Power settings
- Configurable ACK timeout for long distance
- Wireless Distribution System
- RSSI Led Indicator

(i) Hardware *:

CPU	Ubicom ip3023 Network Processing Unit (250MHz)
Memory	32 MB SD Ram, 4 MB Flash
Embedded OS	ipOS from Ubicom
Network Standard	IEEE 802.11a, IEEE 802.3
Ethernet Type	10/100BaseT Ethernet, Auto MDI/MDI-X
Network Architecture	Infrastructure; Ad-Hoc
Status Indication	Power(Red LED), LAN(Green), RF(Green), RSSI(5 Green LEDs)
Dimension & Weight (i)5826 With Integrated Antenna - (ii)5800S-	

**Hardware Features are same for both Octopus 5826 and Octopus 5800S*

(ii) Radio:

IEEE 802.11a 5GHz

Chipset:
Atheros AR5413

Speed (Max):
54Mbps

Power Consumption:
TX: ~1000mA RX: ~400mA @ 5VDC

Output Power (200mw):
23 dBm @ 6-24 Mbps
22 dBm @ 36 Mbps
19 dBm @ 48 Mbps
17 dBm @ 54 Mbps

Receiver Sensitivity:
-90 dBm @ 6Mbps
-70 dBm @ 54Mbps

Frequency Range:
IEEE 802.11a
5.15~5.35GHz, 5.725~5.850GHz (US & Canada)

5.15~5.35GHz, 5.47~5.725GHz (Europe)
4.90~5.00GHz, 5.03~5.091GHz, 5.15~5.25GHz (Japan)

Modulation Technique:
OFDM and DSSS
OFDM: BPSK, QPSK, 16 QAM, 64QAM

RF Channels:
12 Non-Overlapping Channels
(4 Channels: 5.725 ~ 5.850 GHz)

Data Security:
64/128/152 bit WEP, TKIP, AES, IEEE 802.1x Authentication

Fully Transparent Bridge:
Unlimited MACs

(iii) Power Specifications:

Input Voltage: 110-240VAC
Power Output to Digital Board: 48VDC, 1A

(iv) Status Definition:

Item	State	Description
Power	**ON(Red)**	**Power On**
	Off	**No Power**
RF	**ON(Green)**	**Connected**
	Off	**No Connection**
	Blinking(Green)	**Connected & Transmitting**
LAN	**ON(Green)**	**Connected**
	Off	**No Connection**
	Blinking(Green)	**Connected & Transmitting**
RSSI	**Blinking from LED 1 to LED 5**	**Searching for AP**
	ON	**Connected & Showing Signal Strength**

Note: the LED Indicators are common to all versions of Octopus 5800 Series

(v) Firmware Features:

- QoS (Quality of Service)
- Transmit Power Control
- WDS (Wireless Distribution System)
- ACK Timeout Settings
- CTS/RTS Configuration
- RSSI (Receiver Signal Strength Indication)
- Fragmentation Threshold
- Dual Band Radio Support
- DFS (Dynamic Frequency Selection)
- Bandwidth Management
- Spanning Tree Protocol (802.11d) Support
- Windows Connect Now Support
- DHCP Server/Client
- SNMP Management
- System Logging
- DTIM Frame Settings
- Beacon Settings
- MAC Based Filtering
- TFTP Firmware Upgrade

- Web Based Firmware Upgrade

(vi) Package Contents:

- Outdoor Unit with Integrated Antenna (1)
- Mounting Hardware (1)
- POE Injector (1)
- 48V DC Power Supply (1)
- Quick Setup Guide (1)

(vii) System Requirements:

- A PC/Laptop with Ethernet Interface
- Ethernet Cable
- A Web Browser Preferably Internet Explorer 5.0 + or Mozilla Firefox

Installation

(i) Hardware Installation:

Please follow the following procedure to install the Octopus 5800 ODU.

1. Connect the Data connector of the POE injector to a suitable network PC or switch with a cat5e cable.
2. Connect the ODU connector of the POE injector to the Ethernet connector of the Octopus ODU using a cat5e cable.
3. Power up the POE injector using the provided 48V DC Power Supply.

Fig 3. **Setting up the ODU**

4. Check LEDs on the ODU to confirm status. At this point the PWR LED should be red and Ethernet LED should be green. The RF LED would light up once wireless transmission has started or the device has associated itself to an AP.
5. To access the web manager of the device we need to configure the Windows IP Address Setting so that we are on the same subnet as the device is and are easily able to access the web manager of the device.

(ii) Windows IP Configuration:

In factory mode the device is not able to assign IP addresses dynamically. You would need to configure your PC to a static address of a subnet range 192.168.0.x to access the web manager and configure the device according to your own liking.

Please follow the steps below:

1. Click **Start** on the taskbar and from the **Control Panel** choose **Network Connections**. Right-click the **Local Area Connection** icon and then choose **Properties** from the menu. You should see the **Local Area Connection Properties** dialog box shown below.

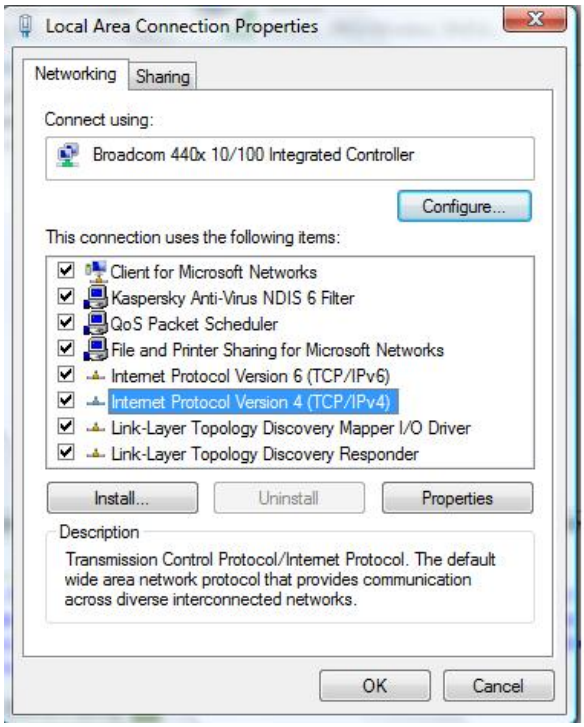


Fig 4.1 **Local Area Connection Properties**

2. Set the IP Address of the Windows PC as shown in the figure below:

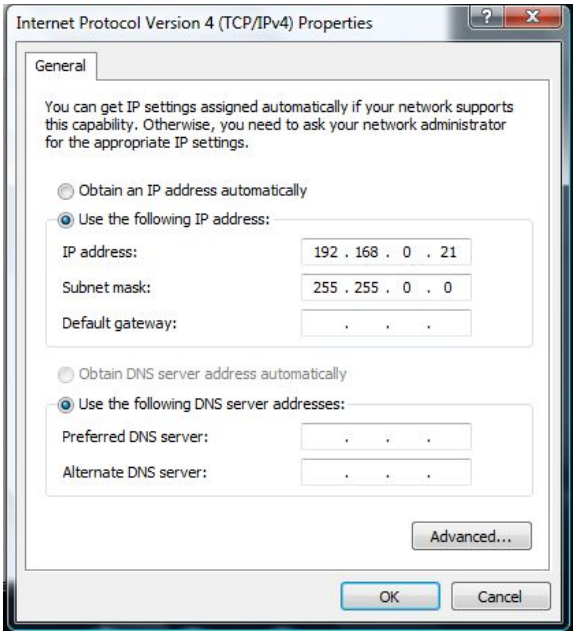

Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 21
Subnet mask: 255 . 255 . 0 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Fig 4.2 **IP Properties**

3. Power up the device as shown in the hardware installation section. Now you will be able to access the Web Manager/Web Configuration GUI.

(iii) Web Configuration GUI:

To access the web manager you need to open your web browser and type the ip address corresponding to web manager of each type i.e. client or AP.

a) For Octopus 5826 Client the Default IP address of the web manager is 192.168.0.232

b) For Octopus 5800S AP, the Default IP address of the web manager is 192.168.0.231

c) Pressing enter would open the Web Manager/Configuration GUI corresponding to its respective device type as shown in the figure below:

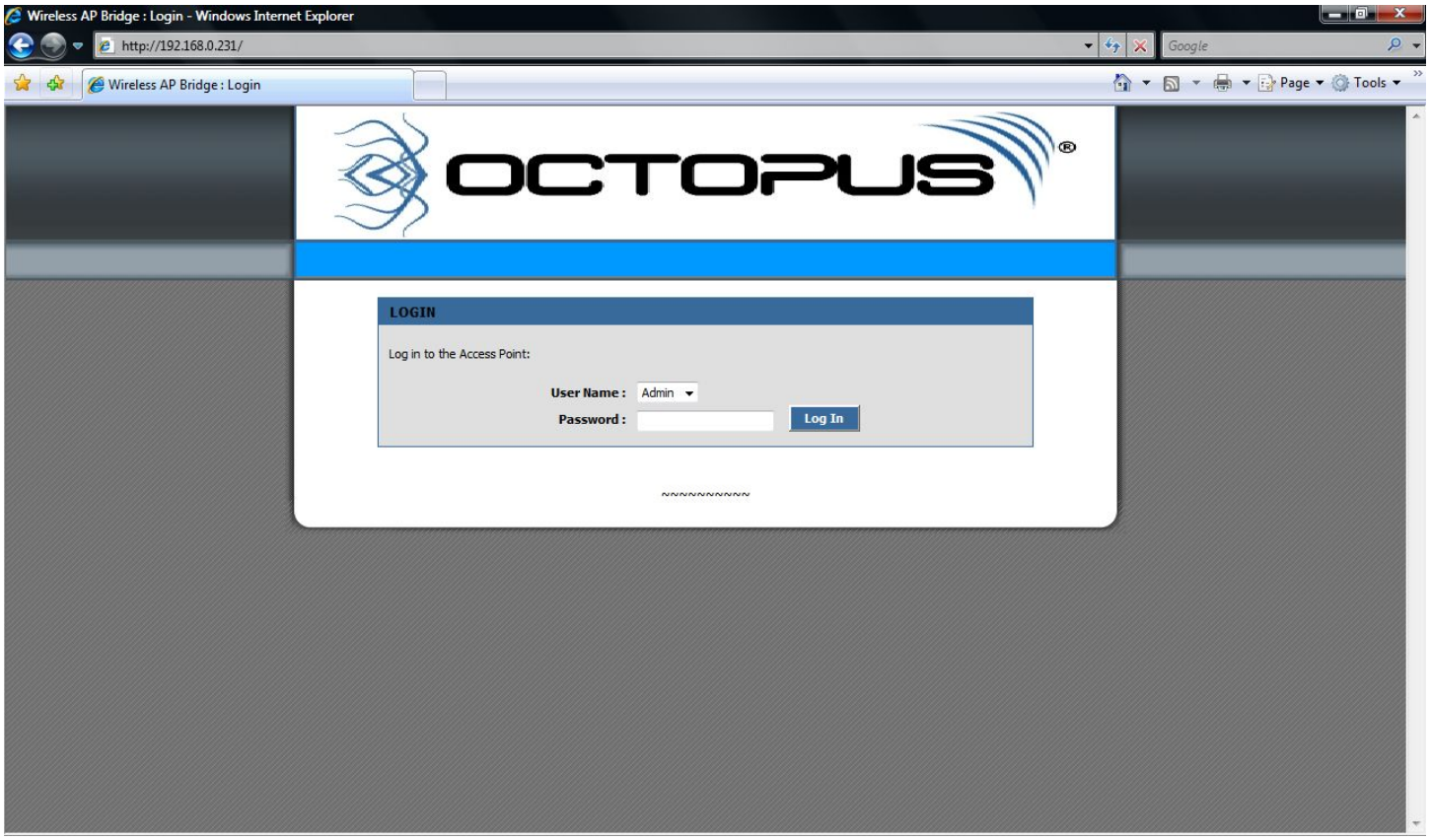


Fig 5.1 **the AP Bridge Login Screen for the Octopus 5800S AP**

Fig 5.2 **the Client Login Screen for the Octopus 5826Client**

d) The Login screen is common to both the AP and the client. The default username in factory mode for AP & Client Web Manager/Configuration is Admin and the Password textbox is left empty.

e) Pressing the Log In button will take you to the main Control panel of the Web Manager/Configuration GUI as shown in the figures below:

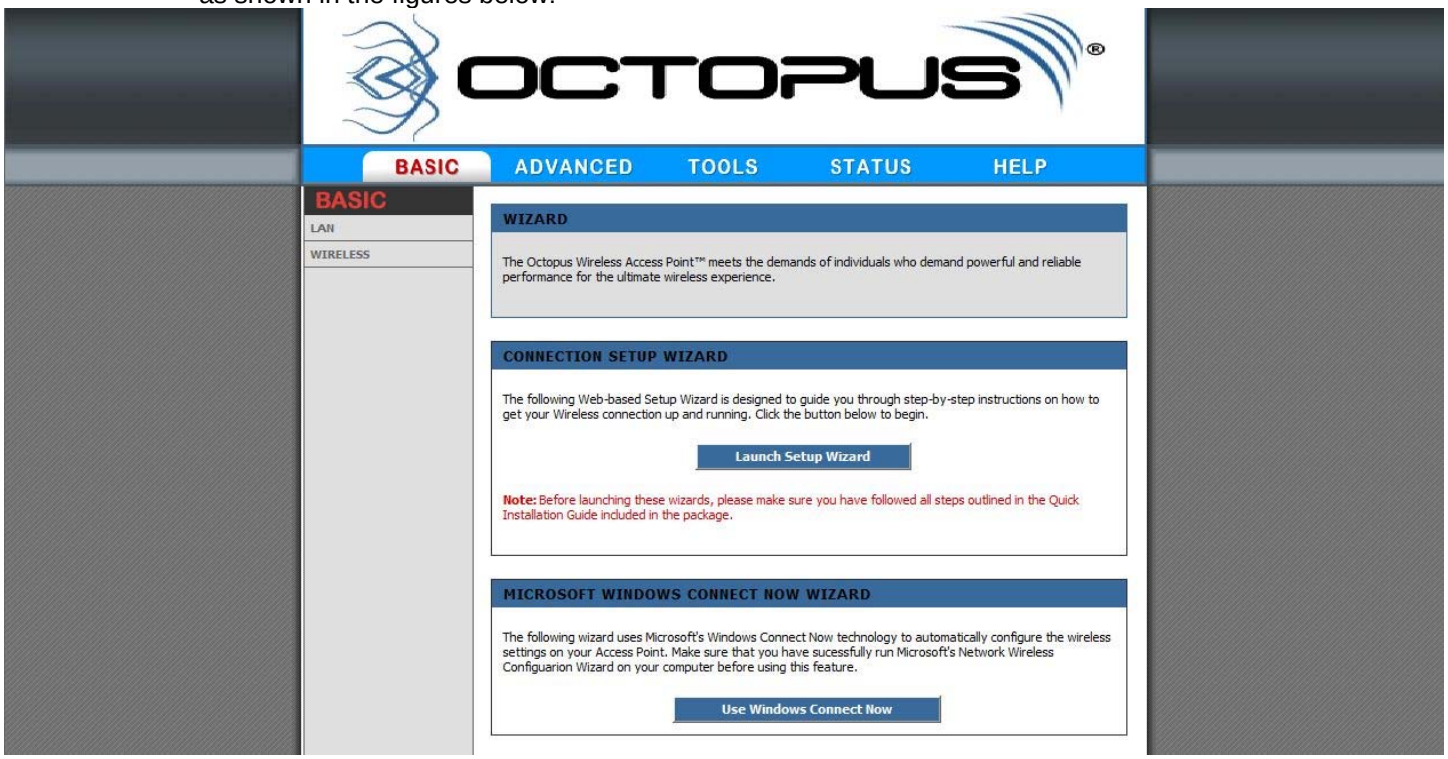

OCTOPUS
BASIC
ADVANCED
TOOLS
STATUS
HELP
BASIC
LAN
WIRELESS
WIZARD
The Octopus Wireless Access Point™ meets the demands of individuals who demand powerful and reliable performance for the ultimate wireless experience.
CONNECTION SETUP WIZARD
The following Web-based Setup Wizard is designed to guide you through step-by-step instructions on how to get your Wireless connection up and running. Click the button below to begin.
Launch Setup Wizard
Note: Before launching these wizards, please make sure you have followed all steps outlined in the Quick Installation Guide included in the package.
MICROSOFT WINDOWS CONNECT NOW WIZARD
The following wizard uses Microsoft's Windows Connect Now technology to automatically configure the wireless settings on your Access Point. Make sure that you have sucessfully run Microsoft's Network Wireless Configuarion Wizard on your computer before using this feature.
Use Windows Connect Now

Fig 5.3 **the Main Control Panel of the Web Manager GUI in Access Point Mode**

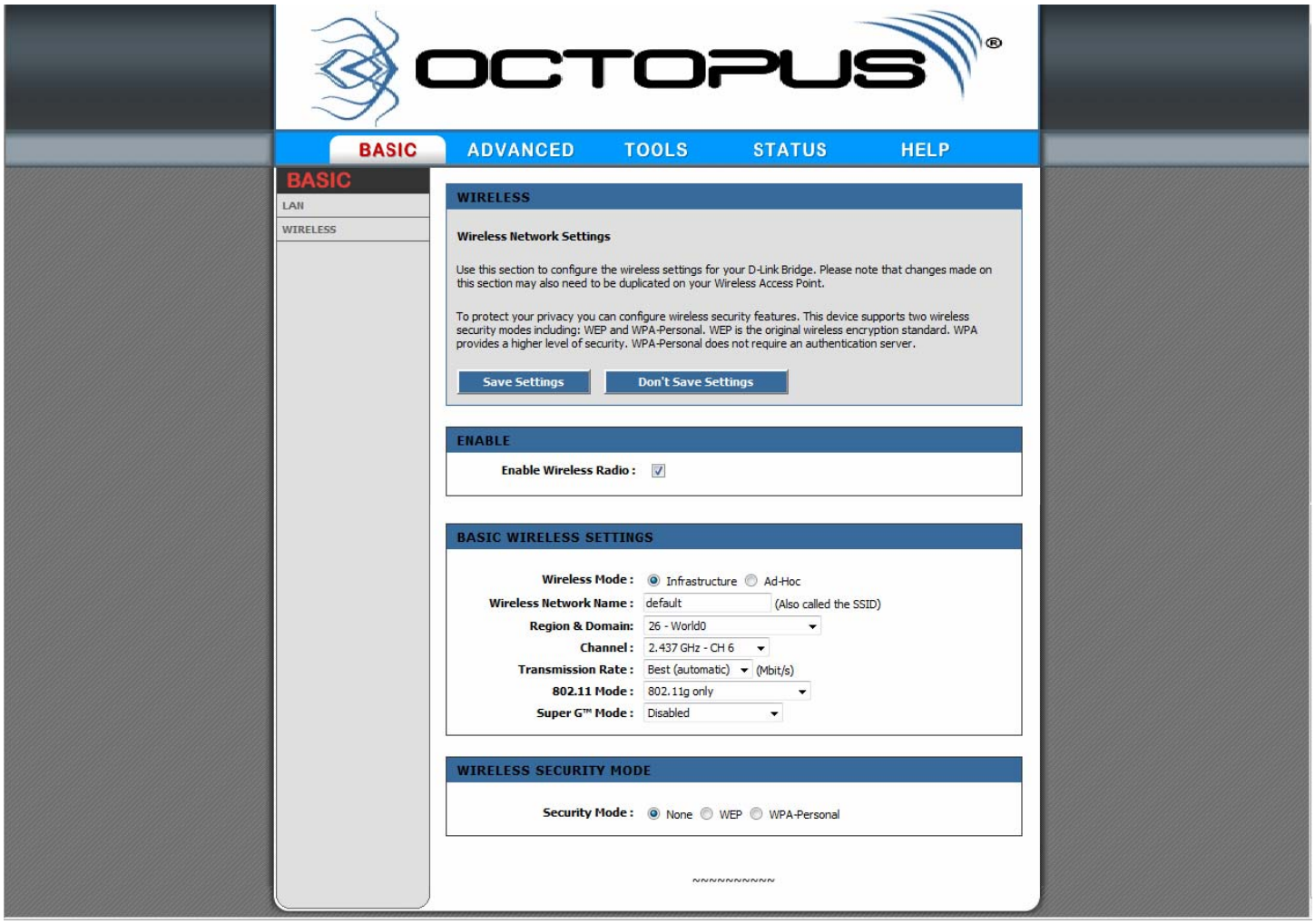

OCTOPUS
BASIC
ADVANCED
TOOLS
STATUS
HELP
BASIC
LAN
WIRELESS
WIRELESS
Wireless Network Settings
Use this section to configure the wireless settings for your D-Link Bridge. Please note that changes made on this section may also need to be duplicated on your Wireless Access Point.
To protect your privacy you can configure wireless security features. This device supports two wireless security modes including: WEP and WPA-Personal. WEP is the original wireless encryption standard. WPA provides a higher level of security. WPA-Personal does not require an authentication server.
Save Settings
Don't Save Settings
ENABLE
Enable Wireless Radio :
BASIC WIRELESS SETTINGS
Wireless Mode : Infrastructure Ad-Hoc
Wireless Network Name : default (Also called the SSID)
Region & Domain: 26 - World0
Channel : 2.437 GHz - CH 6
Transmission Rate : Best (automatic) (Mbit/s)
802.11 Mode : 802.11g only
Super G™ Mode : Disabled
WIRELESS SECURITY MODE
Security Mode : None WEP WPA-Personal

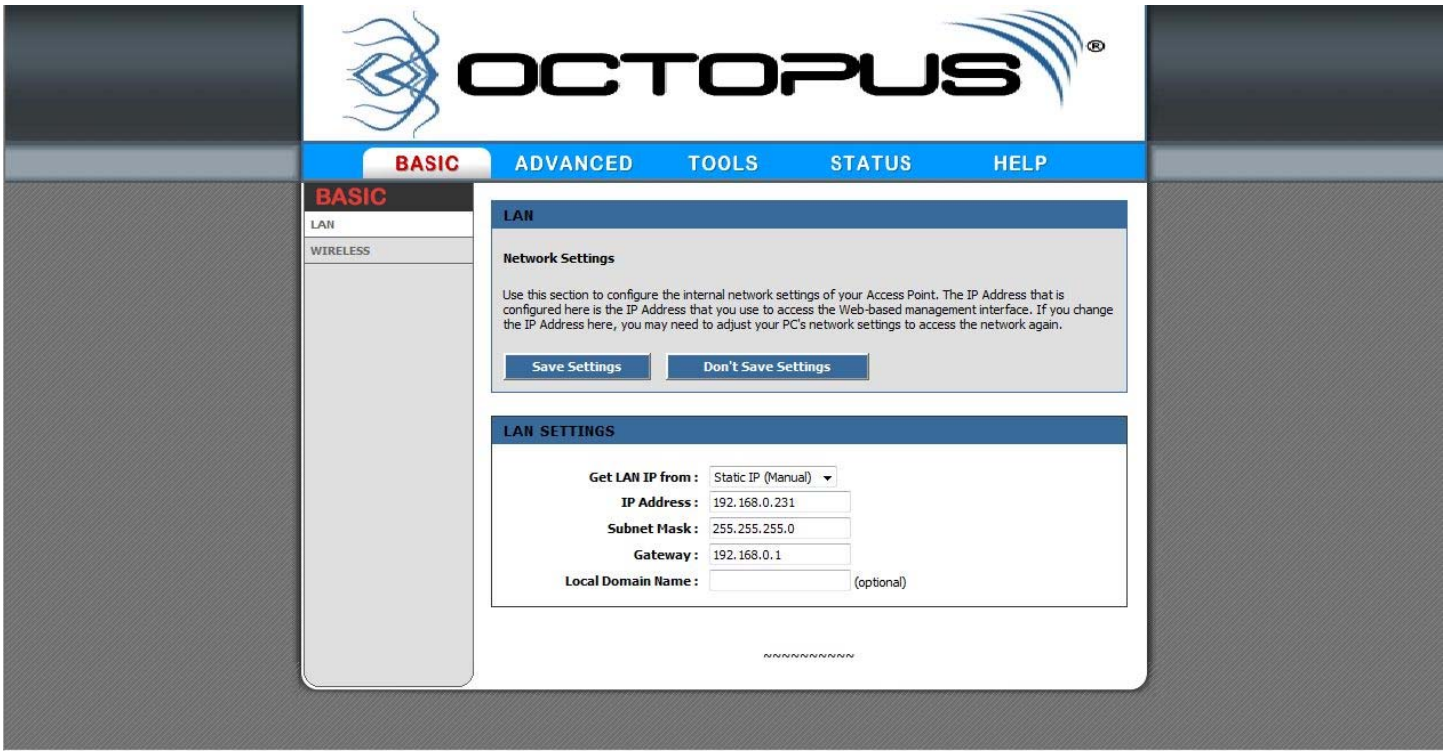
Fig 5.4 **the Main Control Panel of the Web Manager GUI in Client Mode**

Firmware Guide & Configurations

This section shows how to configure the firmware of the octopus 5800 Series. Before continuing please do save any configurations changes made to the firmware by the save settings button and reboot the device for the changes to take effect.

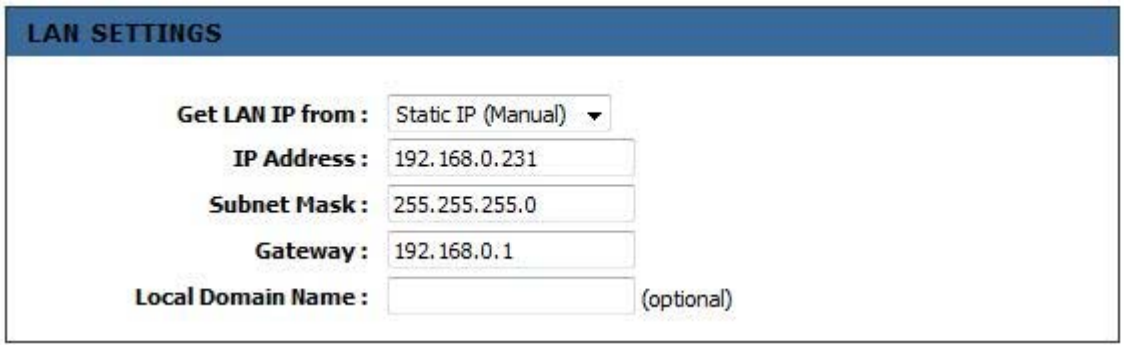
(i) Basic

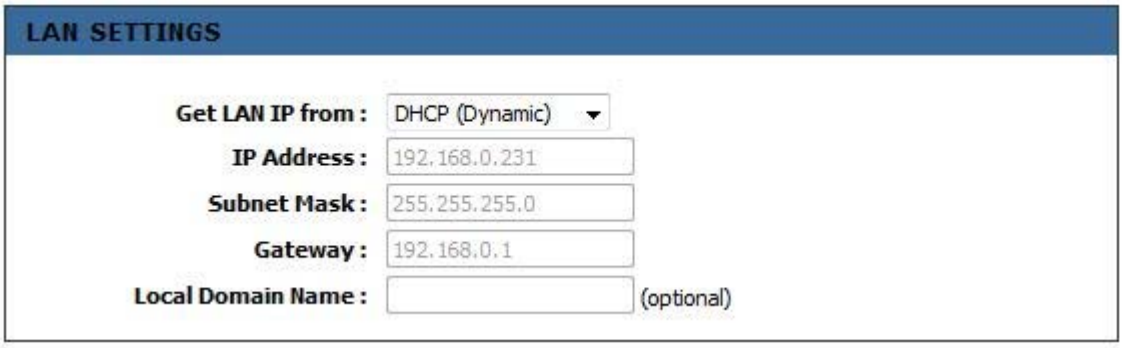
All the basic LAN & wireless configurations regarding IP Addresses, SSID, Wireless frequency, Channel, Region etc are listed under the Basic Tab.


OCTOPUS
BASIC
ADVANCED
TOOLS
STATUS
HELP
BASIC
LAN
WIRELESS
LAN
Network Settings
Use this section to configure the internal network settings of your Access Point. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.
Save Settings
Don't Save Settings
LAN SETTINGS
Get LAN IP from : Static IP (Manual)
IP Address : 192.168.0.231
Subnet Mask : 255.255.255.0
Gateway : 192.168.0.1
Local Domain Name : (optional)

a) LAN

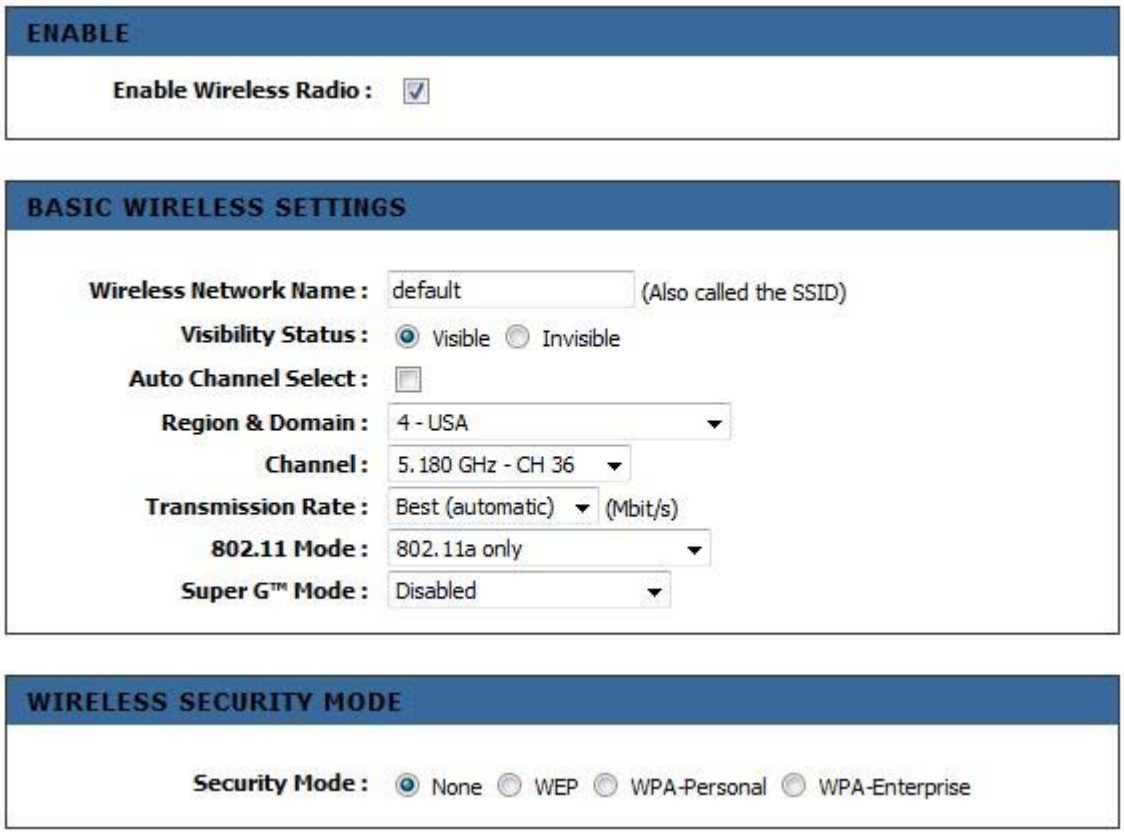
- By Clicking on the LAN hyperlink you can configure the LAN/Ethernet Settings of the wireless AP according to your own requirement.
- The Settings are of two types Static and Dynamic (DHCP). These can be changed using the **Get LAN IP from** drop down box.
- The **IP Address** field is used to give the device a static IP address if the IP type is set to Static IP (Manual).
- In DHCP mode the device automatically allocates an IP using the DHCP spool.
- The **Subnet Mask** should be of the same class type as is the IP address.
- **Gateway** address is the IP address of the main server from which all traffic is relayed to the access Point i.e. it could be a PC, modem or any other device that is acting as the mainstream for the data. Please refer to the diagrams below for both Static IP and Dynamic IP Settings.


LAN SETTINGS
Get LAN IP from : Static IP (Manual)
IP Address : 192.168.0.231
Subnet Mask : 255.255.255.0
Gateway : 192.168.0.1
Local Domain Name : (optional)


LAN SETTINGS
Get LAN IP from : DHCP (Dynamic)
IP Address : 192.168.0.231
Subnet Mask : 255.255.255.0
Gateway : 192.168.0.1
Local Domain Name : (optional)

b) Wireless

The wireless hyperlink under the basic settings tab is used to configure basic wireless settings as shown in the figure below:

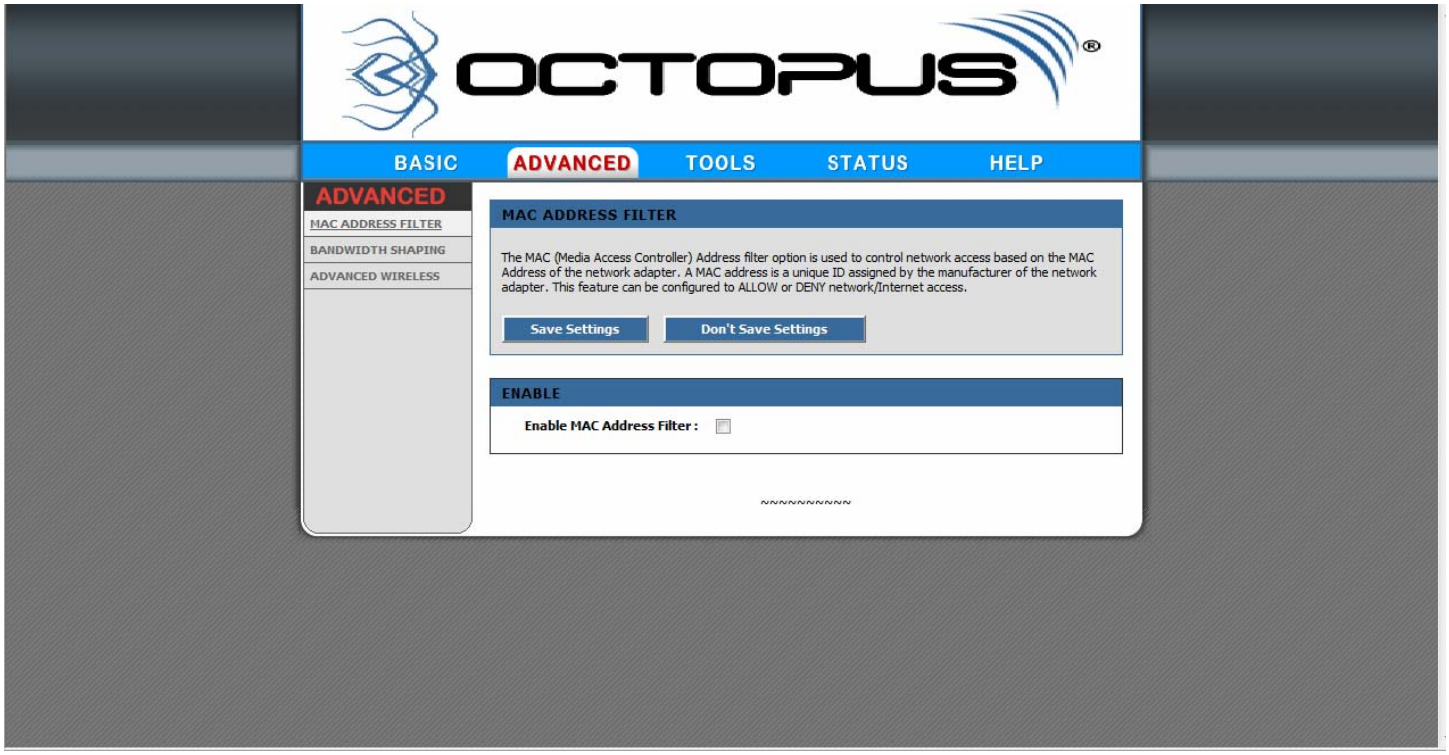

ENABLE
Enable Wireless Radio :
BASIC WIRELESS SETTINGS
Wireless Network Name : default (Also called the SSID)
Visibility Status : Visible Invisible
Auto Channel Select :
Region & Domain : 4 - USA
Channel : 5.180 GHz - CH 36
Transmission Rate : Best (automatic) (Mbit/s)
802.11 Mode : 802.11a only
Super G™ Mode : Disabled
WIRELESS SECURITY MODE
Security Mode : None WEP WPA-Personal WPA-Enterprise

- The **Enable Wireless Radio** checkbox can be used to enable/disable the wireless radio.
- **Wireless Network Name** field is used to set the SSID of the AP through which the AP is identified at the client end. In factory settings "**default**" is the SSID.
- **Visibility Status** makes the wireless network visible/invisible to clients. This could be used as a security tool to avoid unwanted users to connect to the AP.
- **Auto Channel Select** is a feature that chooses the best channel available in terms of interference and signal strength level. It is also known as **DFS (Dynamic Frequency Selection).**
- **Region & Domain** is used to setup the region and domain for this device. This feature is used for areas wherever there is a limitation on channels and transmission power etc.
- The **Channel** field is used to choose a specific channel on which the transmission has to take place. The octopus firmware is flexible enough to list all channels for 5.8GHz non-turbo and turbo.
- **Transmission Rate** is used to set the bandwidth speed or throughput of the wireless link in mbps. By default its set to Best (automatic).

- **802.11 mode** is the feature that sets the type of 802.11 i.e. a, b or g. This feature is only available where dual band radio is being used and will be missing from independent versions of 5.8GHz firmware and 2.4GHz firmware. The mode for octopus 5800 series is 802.11a.
- The **Super G** option enables Super G mode for 802.11g (feature not available in Octopus 5800 Series). Super G is Atheros' proprietary frame-bursting, compression and channel bonding technology to improve IEEE 802.11g wireless LAN performance. The throughput transmission speed limit when using Super G is claimed to be up to 40Mbit/s-60Mbit/s at a 108Mbit/s signaling rate, which is achieved through the bonding of two 54Mbit/s 802.11g channels.
- **Wireless Security Mode** will be discussed in detail in the wireless security section. The Octopus 5800S AP supports WEP, WPA-Personal & WPA-Enterprise whereas the Octopus 5826 Client supports only WEP and WPA-Personal.

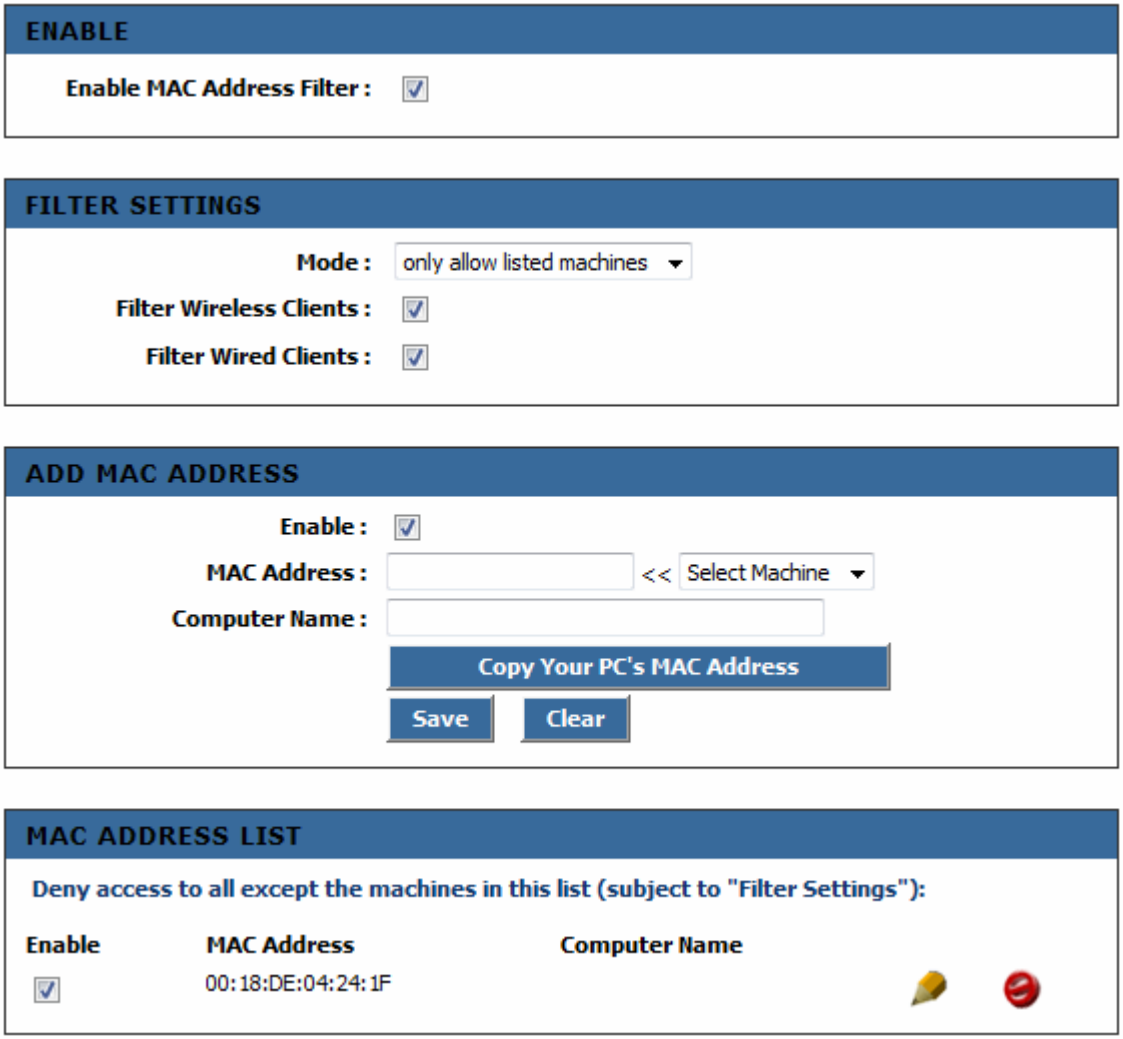
(ii) Advanced

The advanced tab gives you access to all advanced wireless settings like Transmit Power Control, MAC filtering, Bandwidth shaping and all other features that make the wireless network perform optimally.


OCTOPUS
BASIC
ADVANCED
TOOLS
STATUS
HELP
ADVANCED
MAC ADDRESS FILTER
BANDWIDTH SHAPING
ADVANCED WIRELESS
MAC ADDRESS FILTER
The MAC (Media Access Controller) Address filter option is used to control network access based on the MAC Address of the network adapter. A MAC address is a unique ID assigned by the manufacturer of the network adapter. This feature can be configured to ALLOW or DENY network/Internet access.
Save Settings
Don't Save Settings
ENABLE
Enable MAC Address Filter :

a) MAC Address Filter

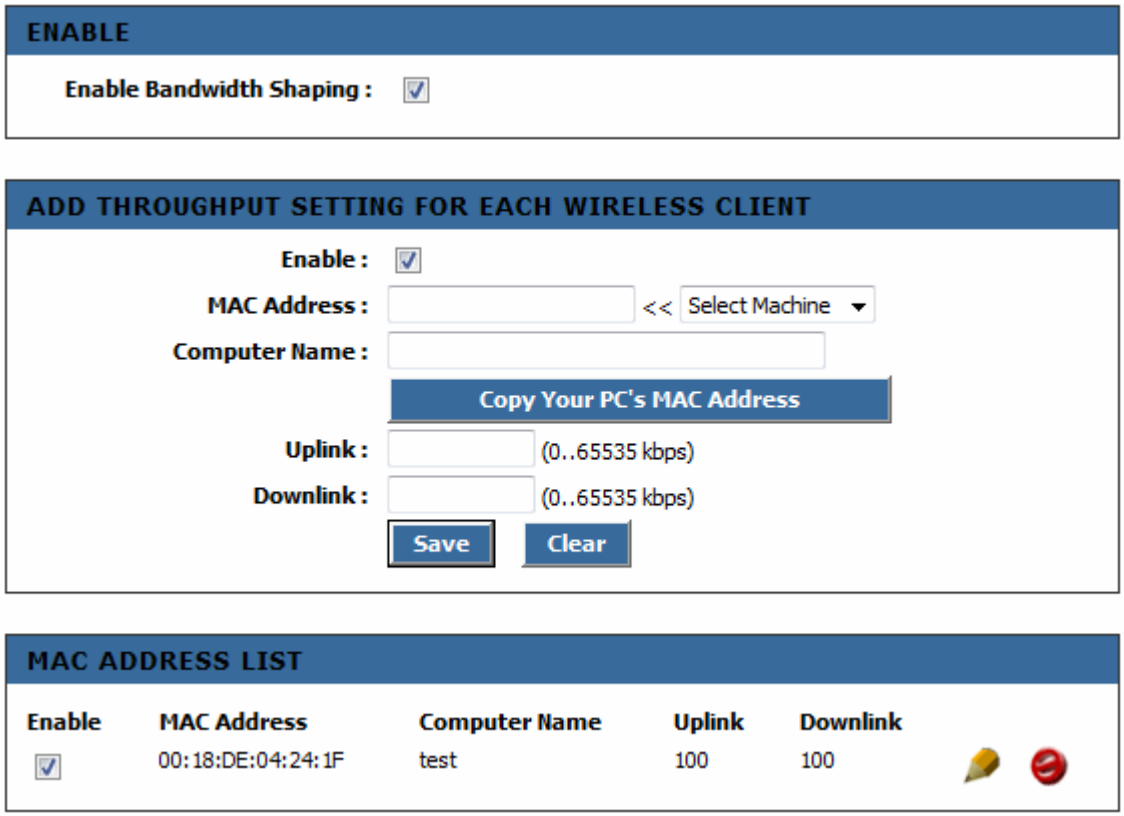
The MAC (Media Access Control) Address filter option is used to control network access based on the MAC Address of the network adapter. A MAC address is a unique ID assigned by the manufacturer of the network adapter. This feature can be configured to ALLOW or DENY network/Internet access.



- The MAC address filter feature is enabled using the **Enable MAC Address Filter** checkbox.
- After the checkbox is enabled, all secondary options related to MAC Address Filter are displayed and you will see a view as listed in the diagram above.
- **Filter Settings** determine the type of filter that you want to apply.
- **Mode** option can be used to set the type of filter i.e. only allow listed machines or deny listed machines
- **Filter Wireless Clients** feature can be used to filter clients which are connected wirelessly with the AP on the basis of the MAC address filter
- **Filter Wired Clients** feature can be used to filter clients which are connected via Ethernet to the AP.
- **Add MAC Address** feature is used to add MAC addresses which you want to filter. To test the functionality you can copy you own PCs MAC address by using the Copy Your PCs MAC Address button.
- Once you have added the MAC address it is displayed in the **MAC Address List** where you can view all MAC addresses that are being filtered. You can edit or delete the MAC addresses by using the **Edit** ( ) and the **Delete** ( ) Icons in the MAC Address list.

b) Bandwidth Shaping

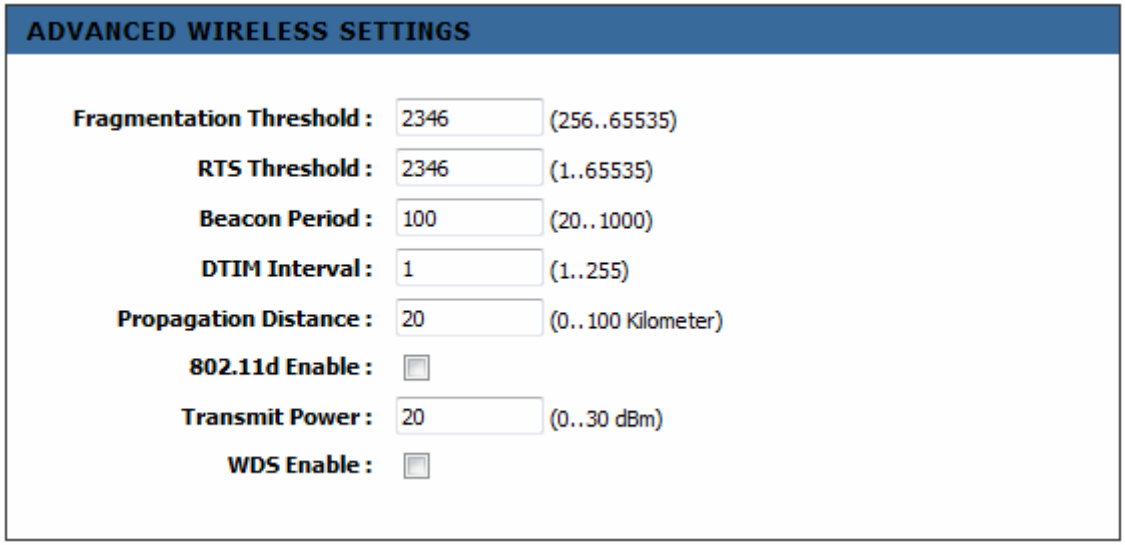
The MAC Address Bandwidth Shaping option is used to control bandwidth usage based on the MAC Address of the network adapter.



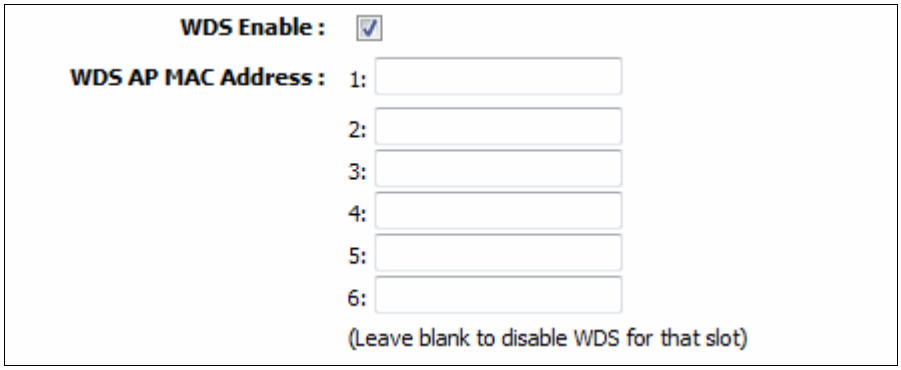
- This feature is enabled by checking the **Enable Bandwidth Shaping** checkbox.
- The features are expanded into an interface shown in the diagram above.
- You can add MAC address to which you want to restrict the bandwidth in the **MAC Address** field and assign a particular name to the computer.
- Upload rate (Kbits/sec) is given in the **Uplink** field and Download rate (Kbits/sec) is given in the **Downlink** field.
- When you press the save button the particular device to which the bandwidth is restricted is added to the **MAC Address List.**
- You can edit or delete the MAC addresses or devices by using the **Edit** ( ) and the **Delete** ( ) Icons in the MAC Address list.

c) Advanced Wireless Configuration

The advance wireless settings are specifically for advanced users who like to tweak their network using these configurations.

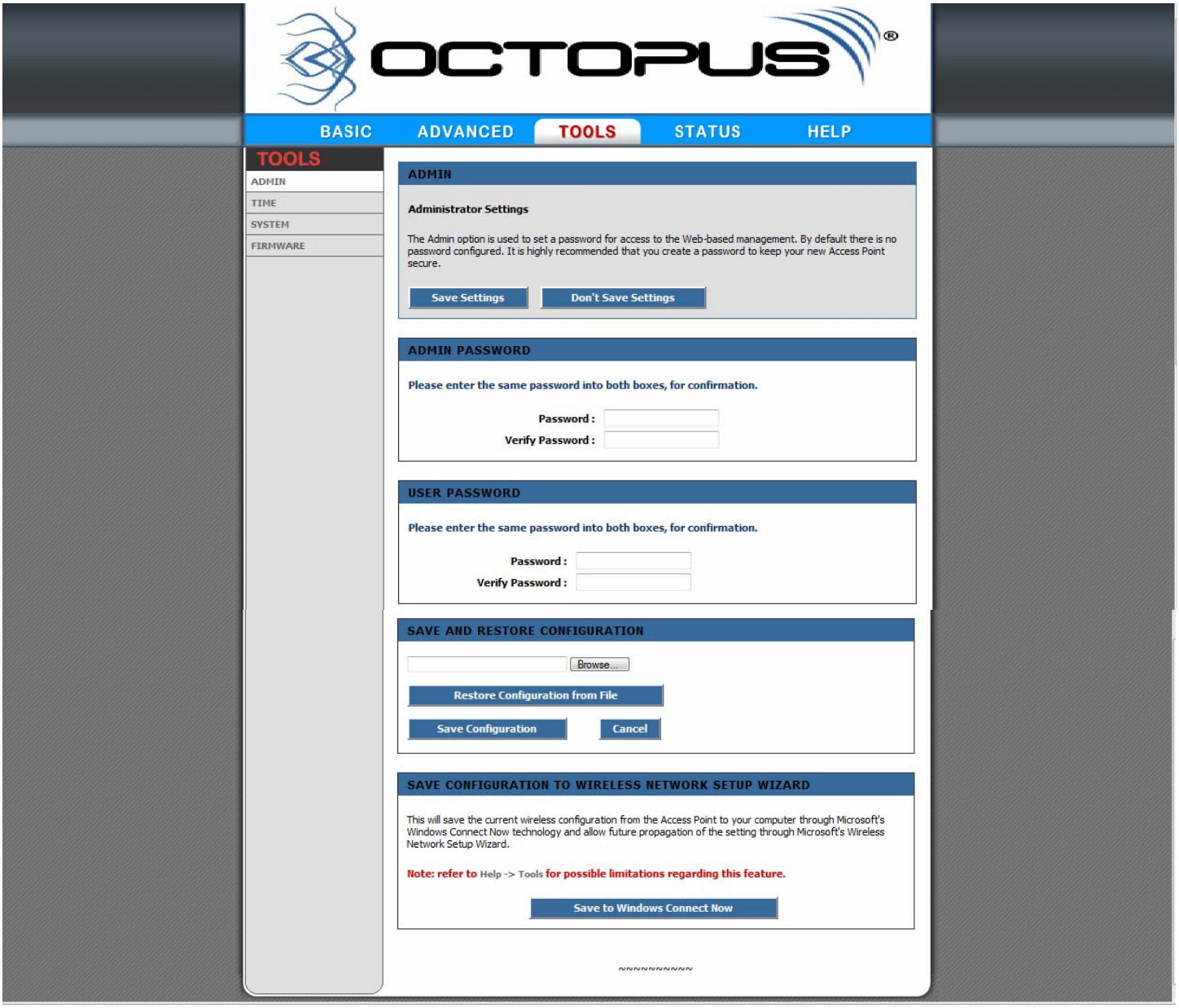

ADVANCED WIRELESS SETTINGS
Fragmentation Threshold : 2346 (256..65535)
RTS Threshold : 2346 (1..65535)
Beacon Period : 100 (20..1000)
DTIM Interval : 1 (1..255)
Propagation Distance : 20 (0..100 Kilometer)
802.11d Enable :
Transmit Power : 20 (0..30 dBm)
WDS Enable :

- **Fragmentation Threshold** is a value that determines what should be the frame size or the MTU (Maximum Transmission Unit) size during the wireless transmission.
- **RTS Threshold** deals with the sizing of the RTS(Request to Send) Packet which is really essential to start a wireless transmission
- **Beacon Period** determines the polling time whenever a beacon is sent between a base station and a client to keep the connection alive and get information about the connection status.
- **DTIM Interval** determines the updation of the distributed traffic indication map within the AP.
- **Propagation Distance** is responsible for setting the distance as a fixed parameter and to tell the AP that the transmission that is taking place has a propagation of X Kms
- **802.11d Enable** turns the feature of spanning tree protocol (802.11d) which is a wireless network communications specification for use in countries where systems using other standards in the 802.11 family are not allowed to operate.
- **Transmit Power or TPC** field is used to set the transmit power of the AP in dBm. The max value that can be set is 30dBm or 1 Watt.

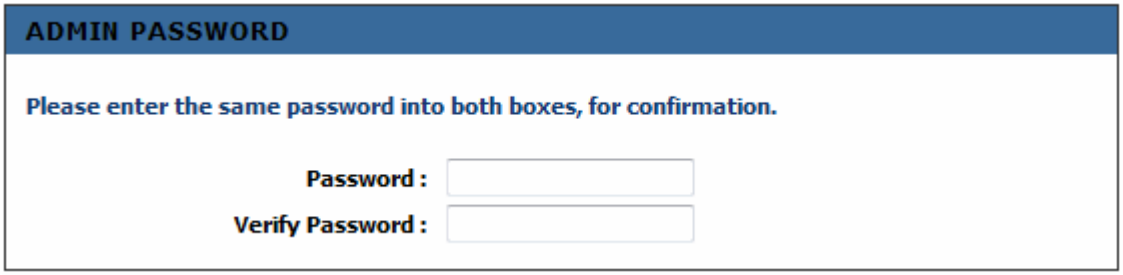


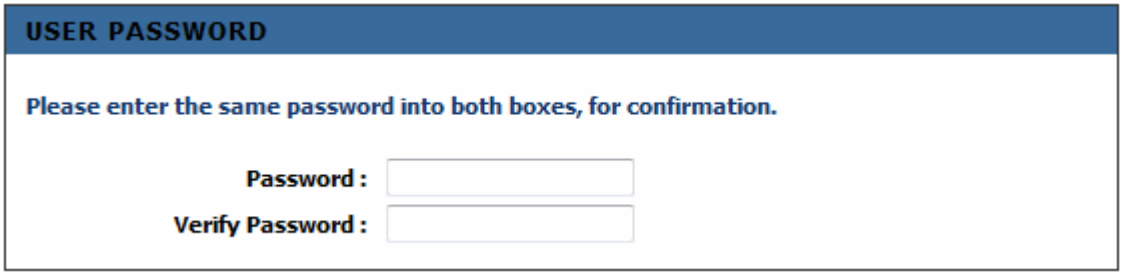
- **WDS Enable** turns the Wireless Distribution System on. You can give MAC Addresses of other APs to which this AP would talk to through this option and the whole system would act as a WDS.

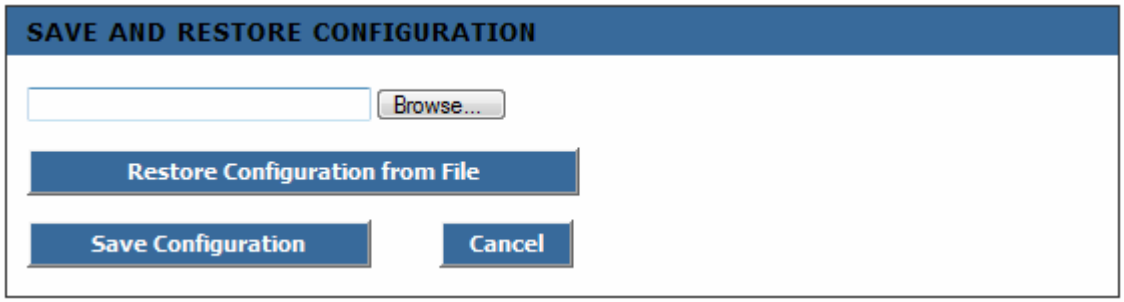
(iii) Tools


OCTOPUS
BASIC
ADVANCED
TOOLS
STATUS
HELP
TOOLS
ADMIN
TIME
SYSTEM
FIRMWARE
ADMIN
Administrator Settings
The Admin option is used to set a password for access to the Web-based management. By default there is no password configured. It is highly recommended that you create a password to keep your new Access Point secure.
Save Settings
Don't Save Settings
ADMIN PASSWORD
Please enter the same password into both boxes, for confirmation.
Password :
Verify Password :
USER PASSWORD
Please enter the same password into both boxes, for confirmation.
Password :
Verify Password :
SAVE AND RESTORE CONFIGURATION
Browse...
Restore Configuration from File
Save Configuration
Cancel
SAVE CONFIGURATION TO WIRELESS NETWORK SETUP WIZARD
This will save the current wireless configuration from the Access Point to your computer through Microsoft's Windows Connect Now technology and allow future propagation of the setting through Microsoft's Wireless Network Setup Wizard.
Note: refer to Help -> Tools for possible limitations regarding this feature.
Save to Windows Connect Now

a) Admin

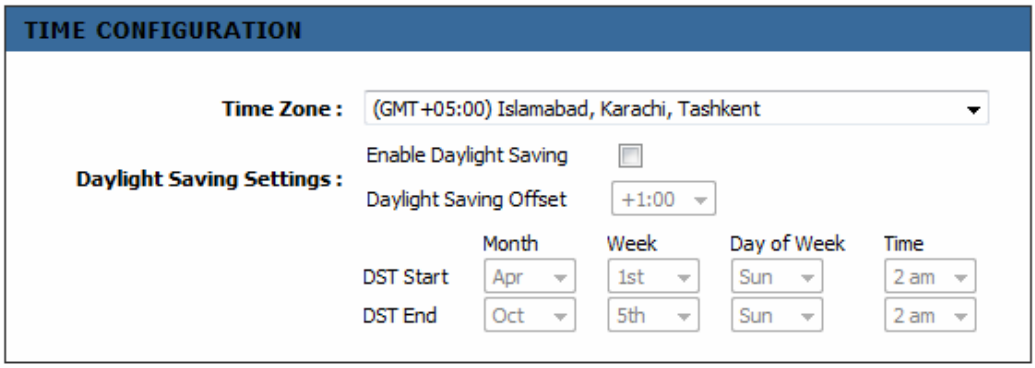

ADMIN PASSWORD
Please enter the same password into both boxes, for confirmation.
Password :
Verify Password :

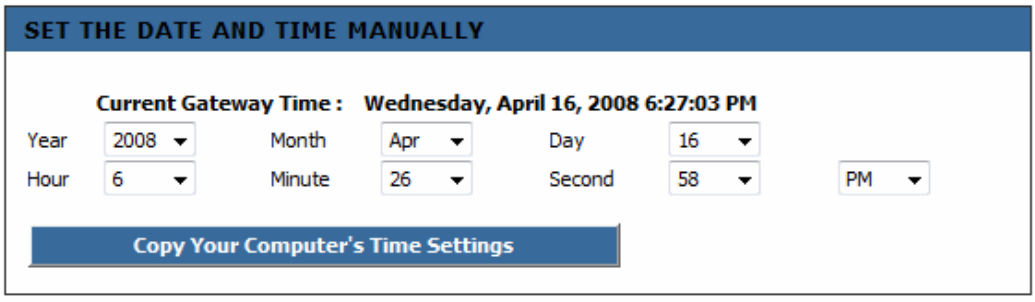

USER PASSWORD
Please enter the same password into both boxes, for confirmation.
Password :
Verify Password :


SAVE AND RESTORE CONFIGURATION
Browse...
Restore Configuration from File
Save Configuration
Cancel

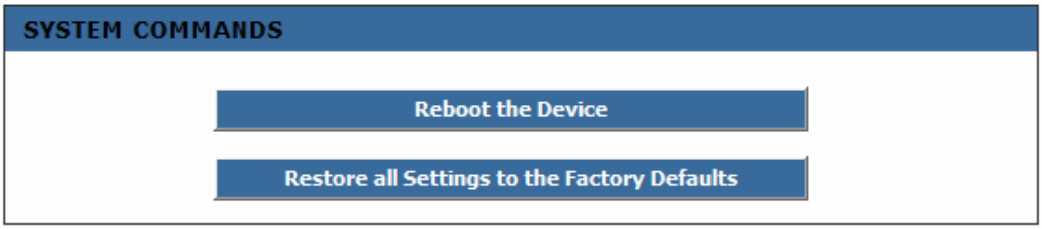
SAVE CONFIGURATION TO WIRELESS NETWORK SETUP WIZARD
This will save the current wireless configuration from the Access Point to your computer through Microsoft's Windows Connect Now technology and allow future propagation of the setting through Microsoft's Wireless Network Setup Wizard.
Note: refer to Help -> Tools for possible limitations regarding this feature.
Save to Windows Connect Now

b) Time

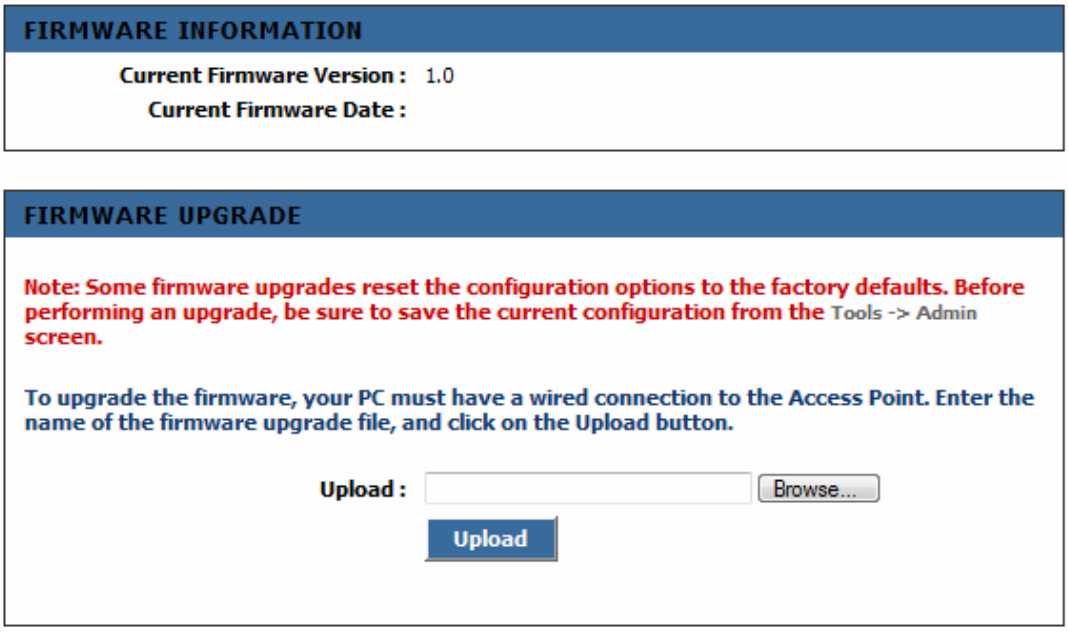

TIME CONFIGURATION
Time Zone :
(GMT+05:00) Islamabad, Karachi, Tashkent
Daylight Saving Settings :
Enable Daylight Saving
Daylight Saving Offset
+1:00
Month
Week
Day of Week
Time
DST Start
Apr
1st
Sun
2 am
DST End
Oct
5th
Sun
2 am

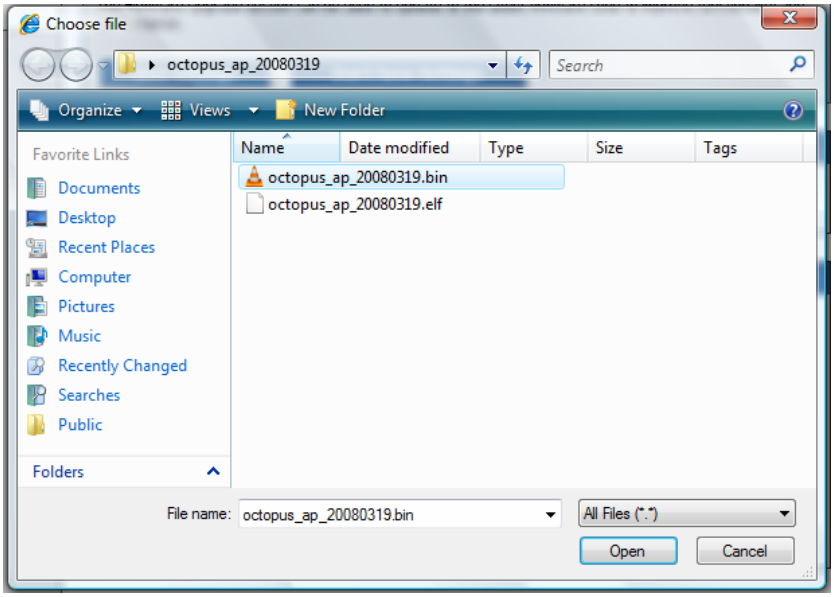

SET THE DATE AND TIME MANUALLY
Current Gateway Time :
Wednesday, April 16, 2008 6:27:03 PM
Year
2008
Month
Apr
Day
16
Hour
6
Minute
26
Second
58
PM
Copy Your Computer's Time Settings

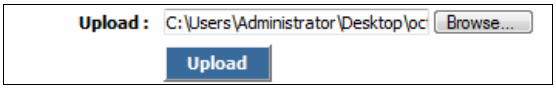
c) System



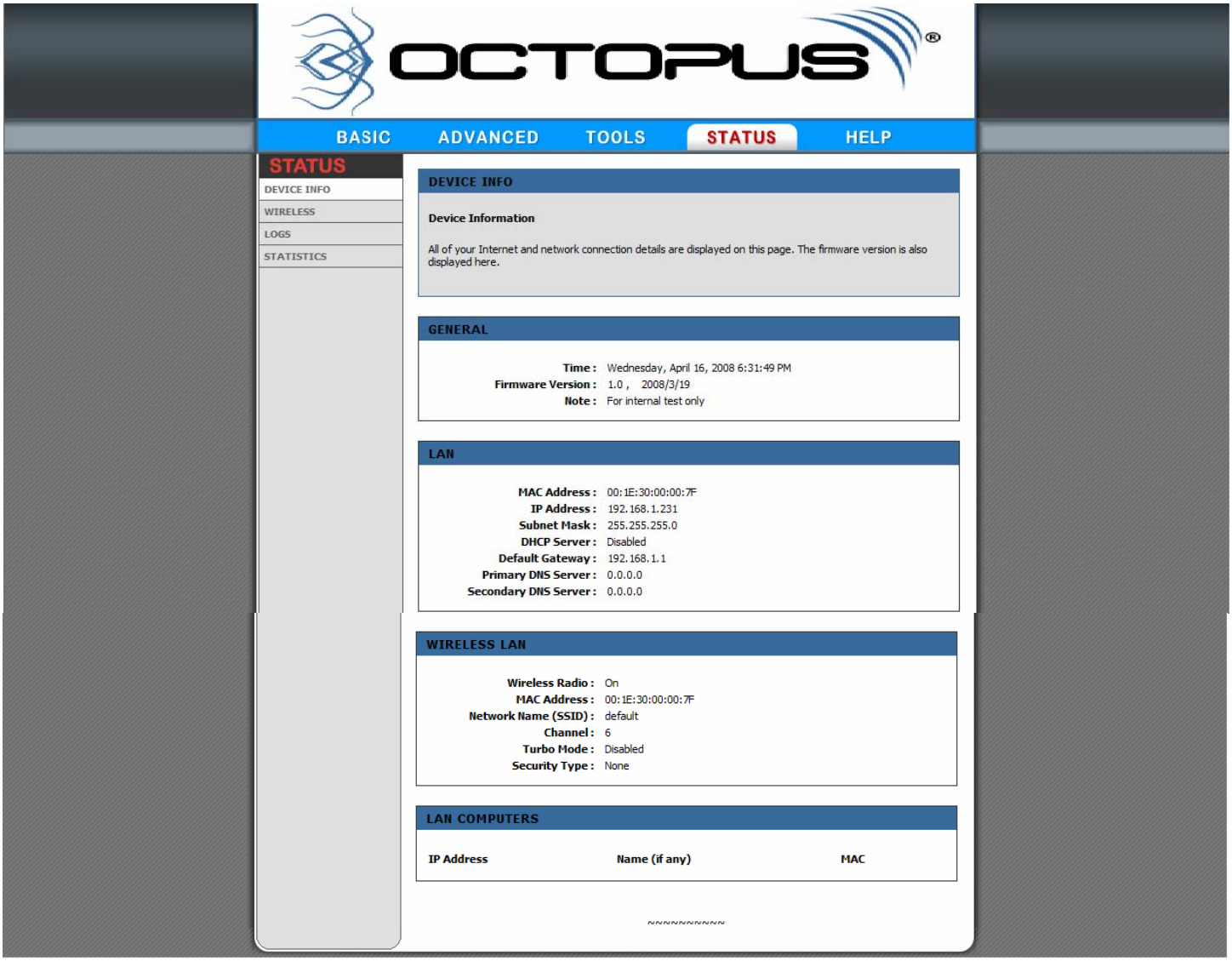
d) Firmware


FIRMWARE INFORMATION
Current Firmware Version : 1.0
Current Firmware Date :
FIRMWARE UPGRADE
Note: Some firmware upgrades reset the configuration options to the factory defaults. Before performing an upgrade, be sure to save the current configuration from the Tools -> Admin screen.
To upgrade the firmware, your PC must have a wired connection to the Access Point. Enter the name of the firmware upgrade file, and click on the Upload button.
Upload :
Browse...
Upload

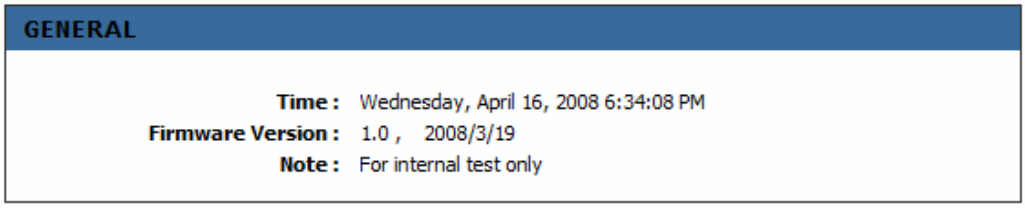


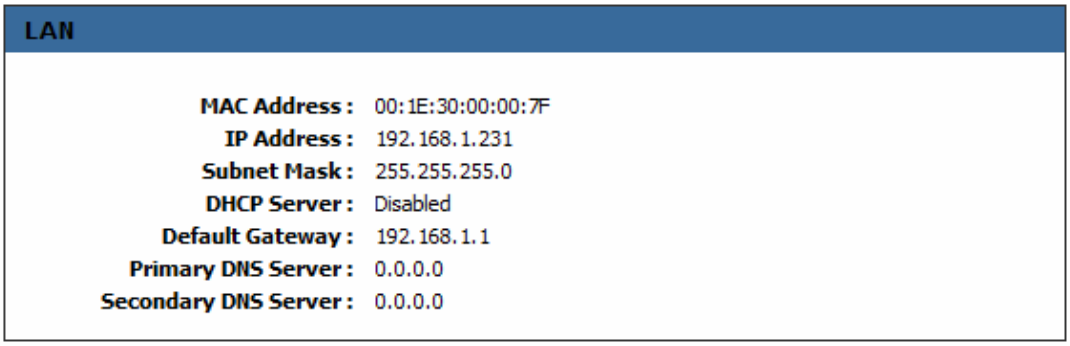


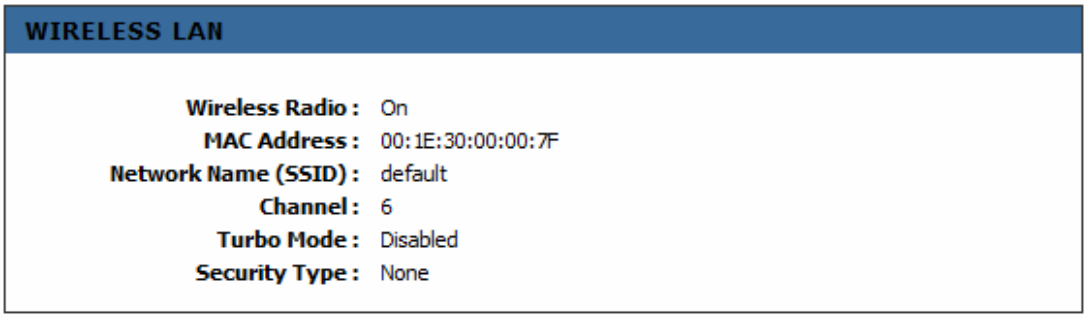
(iv) Status

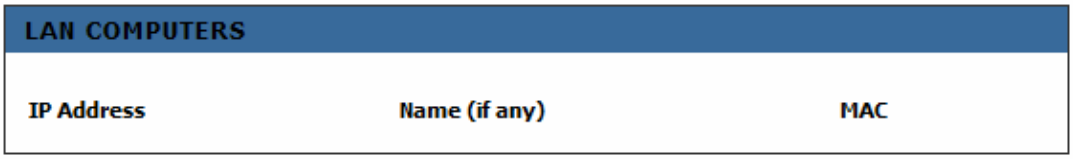


a) Device Info

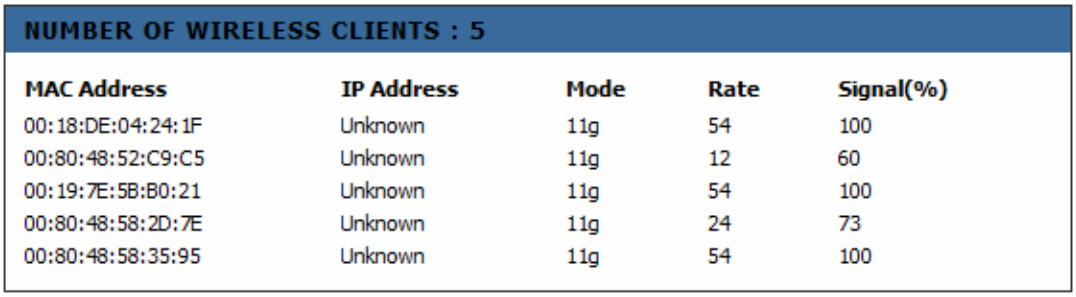




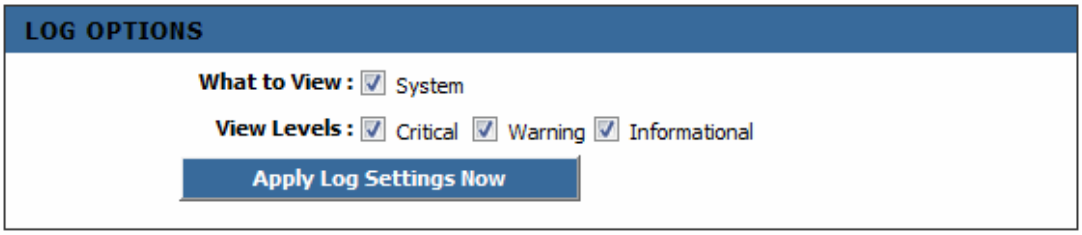


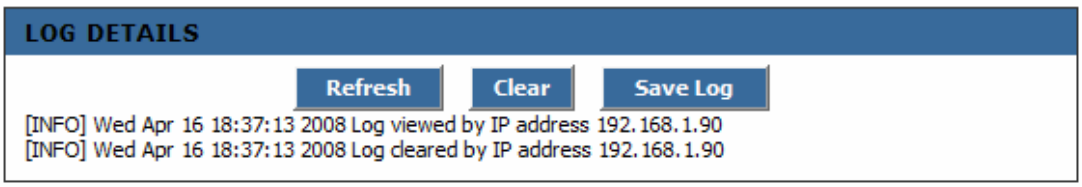


b) Wireless


NUMBER OF WIRELESS CLIENTS : 5
MAC Address IP Address Mode Rate Signal(%)
00:18:DE:04:24:1F Unknown 11g 54 100
00:80:48:52:C9:C5 Unknown 11g 12 60
00:19:7E:5B:B0:21 Unknown 11g 54 100
00:80:48:58:2D:7E Unknown 11g 24 73
00:80:48:58:35:95 Unknown 11g 54 100

c) Logs




LOG DETAILS
Refresh
Clear
Save Log
[INFO] Wed Apr 16 18:37:13 2008 Log viewed by IP address 192.168.1.90
[INFO] Wed Apr 16 18:37:13 2008 Log cleared by IP address 192.168.1.90

d) Statistics

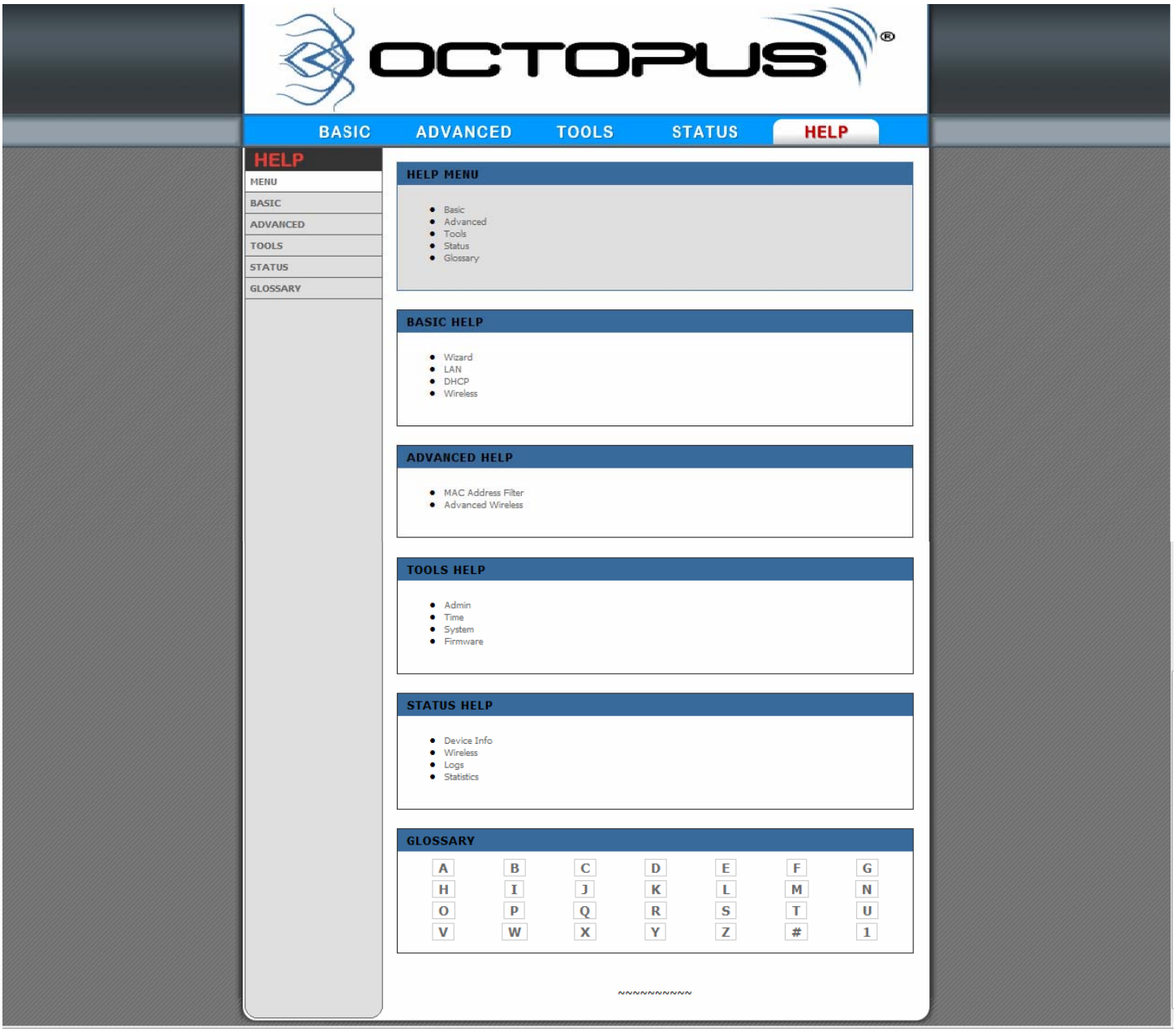
LAN STATISTICS

Sent :	6436	**Received :**	6972
TX Packets Dropped :	9	**RX Packets Dropped :**	0
Collisions :	0	**Errors :**	0

WIRELESS STATISTICS

Sent :	10543	**Received :**	10780
TX Packets Dropped :	277	**Errors :**	0

(v) Help



FAQs & Troubleshooting Guide

Glossary

A

Access Control List

ACL. This is a database of network devices that are allowed to access resources on the network.

Access Point

AP. Device that allows wireless clients to connect to it and access the network

ActiveX

A Microsoft specification for the interaction of software components.

Ad-hoc network

Peer-to-Peer network between wireless clients

Address Resolution Protocol

ARP. Used to map MAC addresses to IP addresses so that conversions can be made in both directions.

ADSL

Asymmetric Digital Subscriber Line

Advanced Encryption Standard

AES. Government encryption standard

Alphanumeric

Characters A-Z and 0-9

Antenna

Used to transmit and receive RF signals.

AppleTalk

A set of Local Area Network protocols developed by Apple for their computer systems

AppleTalk Address Resolution Protocol

AARP. Used to map the MAC addresses of Apple computers to their AppleTalk network addresses, so that conversions can be made in both directions.

Application layer

7th Layer of the OSI model. Provides services to applications to ensure that they can communicate properly with other applications on a network.

ASCII

American Standard Code for Information Interchange. This system of characters is most commonly used for text files

Attenuation

The loss in strength of digital and analog signals. The loss is greater when the signal is being transmitted over long distances.

Authentication

To provide credentials, like a Password, in order to verify that the person or device is really who they are claiming to be

Automatic Private IP Addressing

APIPA. An IP address that that a Windows computer will assign itself when it is configured to obtain an IP address automatically but no DHCP server is available on the network

B

Backward Compatible

The ability for new devices to communicate and interact with older legacy devices to guarantee interoperability

Bandwidth

The maximum amount of bytes or bits per second that can be transmitted to and from a network device

Basic Input/Output System

BIOS. A program that the processor of a computer uses to startup the system once it is turned on

Baud

Data transmission speed

Beacon

A data frame by which one of the stations in a Wi-Fi network periodically broadcasts network control data to other wireless stations.

Bit rate

The amount of bits that pass in given amount of time

Bit/sec

Bits per second

BOOTP

Bootstrap Protocol. Allows for computers to be booted up and given an IP address with no user intervention

Bottleneck

A time during processes when something causes the process to slowdown or stop all together

Broadband

A wide band of frequencies available for transmitting data

Broadcast

Transmitting data in all directions at once

Browser

A program that allows you to access resources on the web and provides them to you graphically

C

Cable modem

A device that allows you to connect a computer up to a coaxial cable and receive Internet access from your Cable provider

CardBus

A newer version of the PC Card or PCMCIA interface. It supports a 32-bit data path, DMA, and consumes less voltage

CAT 5

Category 5. Used for 10/100 Mbps or 1Gbps Ethernet connections

Client

A program or user that requests data from a server

Collision

When do two devices on the same Ethernet network try and transmit data at the exact same time.

Cookie

Information that is stored on the hard drive of your computer that holds your preferences to the site that gave your computer the cookie

D

Data

Information that has been translated into binary so that it can be processed or moved to another device

Data Encryption Standard

Uses a randomly selected 56-bit key that must be known by both the sender and the receiver when information is exchanged

Data-Link layer

The second layer of the OSI model. Controls the movement of data on the physical link of a network

Database

Organizes information so that it can be managed updated, as well as easily accessed by users or applications.

DB-25

A 25 ping male connector for attaching External modems or RS-232 serial devices

DB-9

A 9 pin connector for RS-232 connections

dBd

Decibels related to dipole antenna

dBi

Decibels relative to isotropic radiator

dBm

Decibels relative to one milliwatt

Decrypt

To unscramble an encrypted message back into plain text

Default

A predetermined value or setting that is used by a program when no user input has been entered for this value or setting

Demilitarized zone

DMZ: A single computer or group of computers that can be accessed by both users on the Internet as well as users on the Local Network, but that is not protected by the same security as the Local Network.

DHCP

Dynamic Host Configuration Protocol: Used to automatically assign IP addresses from a predefined pool of addresses to computers or devices that request them

Digital certificate:

An electronic method of providing credentials to a server in order to have access to it or a network

Direct Sequence Spread Spectrum

DSSS: Modulation technique used by 802.11b wireless devices

DMZ

"Demilitarized Zone". A computer that logically sits in a "no-mans land" between the LAN and the WAN. The DMZ computer trades some of the protection of the Access Point's security mechanisms for the convenience of being directly addressable from the Internet.

DNS

Domain Name System: Translates Domain Names to IP addresses

Domain name

A name that is associated with an IP address

Download

To send a request from one computer to another and have the file transmitted back to the requesting computer

DSL

Digital Subscriber Line. High bandwidth Internet connection over telephone lines

Duplex

Sending and Receiving data transmissions at the sane time

Dynamic DNS service

Dynamic DNS is provided by companies to allow users with Dynamic IP addresses to obtain a Domain Name that will always by linked to their changing IP address. The IP address is updated by either client software running on a computer or by a Access Point that supports Dynamic DNS, whenever the IP address changes

Dynamic IP address

IP address that is assigned by a DHCP server and that may change. Cable Internet providers usually use this method to assign IP addresses to their customers.

E

EAP

Extensible Authentication Protocol

Email

Electronic Mail is a computer-stored message that is transmitted over the Internet

Encryption

Converting data into cyphertext so that it cannot be easily read

Ethernet

The most widely used technology for Local Area Networks.

F

Fiber optic

A way of sending data through light impulses over glass or plastic wire or fiber

File server

A computer on a network that stores data so that the other computers on the network can all access it

File sharing

Allowing data from computers on a network to be accessed by other computers on the network with different levels of access rights

Firewall

A device that protects resources of the Local Area Network from unauthorized users outside of the local network

Firmware

Programming that is inserted into a hardware device that tells it how to function

Fragmentation

Breaking up data into smaller pieces to make it easier to store

FTP

File Transfer Protocol. Easiest way to transfer files between computers on the Internet

Full-duplex

Sending and Receiving data at the same time

G

Gain

The amount an amplifier boosts the wireless signal

Gateway

A device that connects your network to another, like the internet

Gbps

Gigabits per second

Gigabit Ethernet

Transmission technology that provides a data rate of 1 billion bits per second

GUI

Graphical user interface

H

H.323

A standard that provides consistency of voice and video transmissions and compatibility for videoconferencing devices

Half-duplex

Data cannot be transmitted and received at the same time

Hashing

Transforming a string of characters into a shorter string with a predefined length

Hexadecimal

Characters 0-9 and A-F

Hop

The action of data packets being transmitted from one Access Point to another

Host

Computer on a network

HTTP

Hypertext Transfer Protocol is used to transfer files from HTTP servers (web servers) to HTTP clients (web browsers)

HTTPS

HTTP over SSL is used to encrypt and decrypt HTTP transmissions

Hub

A networking device that connects multiple devices together

I

ICMP

Internet Control Message Protocol

IEEE

Institute of Electrical and Electronics Engineers

IGMP

Internet Group Management Protocol is used to make sure that computers can report their multicast group membership to adjacent Access Points

IIS

Internet Information Server is a WEB server and FTP server provided by Microsoft

IKE

Internet Key Exchange is used to ensure security for VPN connections

Infrastructure

In terms of a wireless network, this is when wireless clients use an Access Point to gain access to the network

Internet

A system of worldwide networks which use TCP/IP to allow for resources to be accessed from computers around the world

Internet Explorer

A World Wide Web browser created and provided by Microsoft

Internet Protocol

The method of transferring data from one computer to another on the Internet

Internet Protocol Security

IPsec provides security at the packet processing layer of network communication

Internet Service Provider

An ISP provides access to the Internet to individuals or companies

Intranet

A private network

Intrusion Detection

A type of security that scans a network to detect attacks coming from inside and outside of the network

IP

Internet Protocol

IP address

A 32-bit number, when talking about Internet Protocol Version 4, that identifies each computer that transmits data on the Internet or on an Intranet

IPsec

Internet Protocol Security

IPX

Internetwork Packet Exchange is a networking protocol developed by Novel to enable their Netware clients and servers to communicate

ISP

Internet Service Provider

J

Java

A programming language used to create programs and applets for web pages

K

Kbps

Kilobits per second

Kbyte

Kilobyte

L

LAN

Local Area Network

Latency

The amount of time that it takes a packet to get from the one point to another on a network. Also referred to as delay

LED

Light Emitting Diode

Legacy

Older devices or technology

Local Area Network

A group of computers in a building that usually access files from a server

LPR/LPD

"Line Printer Requestor"/"Line Printer Daemon". A TCP/IP protocol for transmitting streams of printer data.

L2TP

Layer 2 Tunneling Protocol

M

MAC address

A unique hardware ID assigned to every Ethernet adapter by the manufacturer.

Mbps

Megabits per second

MDI

Medium Dependent Interface is an Ethernet port for a connection to a straight-through cable

MDIX

Medium Dependent Interface Crossover, is an Ethernet port for a connection to a crossover cable

MIB

Management Information Base is a set of objects that can be managed by using SNMP

Modem

A device that Modulates digital signals from a computer to an analog signal in order to transmit the signal over phone lines. It also Demodulates the analog signals coming from the phone lines to digital signals for your computer

MPPE

Microsoft Point-to-Point Encryption is used to secure data transmissions over PPTP connections

MTU

Maximum Transmission Unit is the largest packet that can be transmitted on a packet-based network like the Internet

Multicast

Sending data from one device to many devices on a network

N

NAT

Network Address Translation allows many private IP addresses to connect to the Internet, or another network, through one IP address

NetBEUI

NetBIOS Extended User Interface is a Local Area Network communication protocol. This is an updated version of NetBIOS

NetBIOS

Network Basic Input/Output System

Netmask

Determines what portion of an IP address designates the Network and which part designates the Host

Network Interface Card

A card installed in a computer or built onto the motherboard that allows the computer to connect to a network

Network Layer

The third layer of the OSI model which handles the routing of traffic on a network

Network Time Protocol

Used to synchronize the time of all the computers in a network

NIC

Network Interface Card

NTP

Network Time Protocol

O

OFDM

Orthogonal Frequency-Division Multiplexing is the modulation technique for both 802.11a and 802.11g

OSI

Open Systems Interconnection is the reference model for how data should travel between two devices on a network

OSPF

Open Shortest Path First is a routing protocol that is used more than RIP in larger scale networks because only changes to the routing table are sent to all the other Access Points in the network as opposed to sending the entire routing table at a regular interval, which is how RIP functions

P

Password

A sequence of characters that is used to authenticate requests to resources on a network

Personal Area Network

The interconnection of networking devices within a range of 10 meters

Physical layer

The first layer of the OSI model. Provides the hardware means of transmitting electrical signals on a data carrier

Ping

A utility program that verifies that a given Internet address exists and can receive messages. The utility sends a control packet to the given address and waits for a response.

PoE

Power over Ethernet is the means of transmitting electricity over the unused pairs in a category 5 Ethernet cable

POP3

Post Office Protocol 3 is used for receiving email

Port

A logical channel endpoint in a network. A computer might have only one physical channel (its Ethernet channel) but can have multiple ports (logical channels) each identified by a number.

PPP

Point-to-Point Protocol is used for two computers to communicate with each over a serial interface, like a phone line

PPPoE

Point-to-Point Protocol over Ethernet is used to connect multiple computers to a remote server over Ethernet

PPTP

Point-to-Point Tunneling Protocol is used for creating VPN tunnels over the Internet between two networks

Preamble

Used to synchronize communication timing between devices on a network

Q

QoS

Quality of Service

R

RADIUS

Remote Authentication Dial-In User Service allows for remote users to dial into a central server and be authenticated in order to access resources on a network

Reboot

To restart a computer and reload it's operating software or firmware from nonvolatile storage.

Rendezvous

Apple's version of UPnP, which allows for devices on a network to discover each other and be connected without the need to configure any settings

Repeater

Retransmits the signal of an Access Point in order to extend it's coverage

RIP

Routing Information Protocol is used to synchronize the routing table of all the Access Points on a network

RJ-11

The most commonly used connection method for telephones

RJ-45

The most commonly used connection method for Ethernet

RS-232C

The interface for serial communication between computers and other related devices

RSA

Algorithm used for encryption and authentication

S

Server

A computer on a network that provides services and resources to other computers on the network

Session key

An encryption and decryption key that is generated for every communication session between two computers

Session layer

The fifth layer of the OSI model which coordinates the connection and communication between applications on both ends

Simple Mail Transfer Protocol

Used for sending and receiving email

Simple Network Management Protocol

Governs the management and monitoring of network devices

SIP

Session Initiation Protocol. A standard protocol for initiating a user session that involves multimedia content, such as voice or chat.

SMTP

Simple Mail Transfer Protocol

SNMP

Simple Network Management Protocol

SOHO

Small Office/Home Office

SPI

Stateful Packet Inspection

SSH

Secure Shell is a command line interface that allows for secure connections to remote computers

SSID

Service Set Identifier is a name for a wireless network

Stateful inspection

A feature of a firewall that monitors outgoing and incoming traffic to make sure that only valid responses to outgoing requests are allowed to pass though the firewall

Subnet mask

Determines what portion of an IP address designates the Network and which part designates the Host

Syslog

System Logger -- a distributed logging interface for collecting in one place the logs from different sources. Originally written for UNIX, it is now available for other operating systems, including Windows.

T

TCP

Transmission Control Protocol

TCP/IP

Transmission Control Protocol/Internet Protocol

TCP Raw

A TCP/IP protocol for transmitting streams of printer data.

TFTP

Trivial File Transfer Protocol is a utility used for transferring files that is simpler to use than FTP but with less features

Throughput

The amount of data that can be transferred in a given time period

Traceroute

A utility displays the routes between you computer and specific destination

U

UDP

User Datagram Protocol

Unicast

Communication between a single sender and receiver

Universal Plug and Play

A standard that allows network devices to discover each other and configure themselves to be a part of the network

Upgrade

To install a more recent version of a software or firmware product

Upload

To send a request from one computer to another and have a file transmitted from the requesting computer to the other

UPnP

Universal Plug and Play

URL

Uniform Resource Locator is a unique address for files accessible on the Internet

USB

Universal Serial Bus

UTP

Unshielded Twisted Pair

V

Virtual Private Network

VPN: A secure tunnel over the Internet to connect remote offices or users to their company's network

VLAN

Virtual LAN

Voice over IP

Sending voice information over the Internet as opposed to the PSTN

VoIP

Voice over IP

W

Wake on LAN

Allows you to power up a computer though it's Network Interface Card

WAN

Wide Area Network

WCN

Windows Connect Now. A Microsoft method for configuring and bootstrapping wireless networking hardware (access points) and wireless clients, including PCs and other devices.

WDS

Wireless Distribution System. A system that enables the interconnection of access points wirelessly.

Web browser

A utility that allows you to view content and interact with all of the information on the World Wide Web

WEP

Wired Equivalent Privacy is security for wireless networks that is supposed to be comparable to that of a wired network

Wi-Fi

Wireless Fidelity

Wi-Fi Protected Access

An updated version of security for wireless networks that provides authentication as well as encryption

Wide Area Network

The larger network that your LAN is connected to, which may be the Internet itself, or a regional or corporate network

Wireless ISP

A company that provides a broadband Internet connection over a wireless connection

Wireless LAN

Connecting to a Local Area Network over one of the 802.11 wireless standards

WISP

Wireless Internet Service Provider

WLAN

Wireless Local Area Network

WPA

Wi-Fi Protected Access. A Wi-Fi security enhancement that provides improved data encryption, relative to WEP.

X

xDSL

A generic term for the family of digital subscriber line (DSL) technologies, such as ADSL, HDSL, RADSL, and SDSL.

Y

Yagi antenna

A directional antenna used to concentrate wireless signals on a specific location

Z

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802.11

A family of specifications for wireless local area networks (WLANs) developed by a working group of the Institute of Electrical and Electronics Engineers (IEEE).